REMARKS

In the September 11, 2003 Office Action, the Examiner noted that claims 14-26 were pending in the application; rejected claim 26 under the second paragraph of 35 U.S.C. § 112; rejected claims 14-18, 20, 21 and 26 under 35 U.S.C. § 102(e); rejected claims 14-21 and 26 under 35 U.S.C. § 103; and objected to claims 22-25 as dependent upon a rejected base claim. In rejecting the claims, U.S. Patents 6,584,118 to Russell et al.; 5,706,285 to Saijonmaa et al.; and 6,151,336 to Cheng et al. (References A, B and F, respectively) were cited. Claims 14-26 remain in the case. The Examiner's rejections are traversed below.

The Invention

The present invention is directed to a system for reducing the data rate of Ethernet signals to insert them into virtual containers of an STM-N signal at the physical layer without requiring a media access control (MAC) processor. This is accomplished by decoding an 8B/10B signal and performing data rate reduction to produce a decoded output that is supplied to a first multiplexer which forms data words from the decoded output and associated monitoring information. A unit coupled to the first multiplexer operates on these data words to form a signal sequence with a predetermined bit length. A second multiplexer coupled to the unit combines at least one such signal sequence with control and administration data for the STM-N frame. In addition, an 8B/9B signal can be recovered from STM-N frames.

The Prior Art

U.S. Patent 6,584,118 to Russell et al.

The Russell et al. patent is directed to payload mapping in synchronous networks. Fig. 4 illustrates the four major components of an Ethernet port card which is part of a synchronous digital hierarchy (SDH) or SONET multiplexer. At one end of the Ethernet port card is an SDH/SONET payload mapper 400 for interfacing to the rest of the SDH/SONET multiplexer. As illustrated in Fig. 8 and described at column 7, line 17 to column 9, line 54, in receive mode SDH/SONET payload mapper 400 "receives a continuous bitstream from a plurality of demultiplexed synchronous virtual containers containing encoded packet data frames in a synchronous channel, which have their boundaries marked by start of data frame and end of data markers" (column 8, lines 40-44). Operations of the payload mapper 400 illustrated in Fig. 8 include identifying boundaries of packet data frames, extracting packet data frames from the synchronous bit stream and decoding packet data frames to release Ethernet data frames.

At the other end of the Ethernet port card illustrated in Fig. 4 is an Ethernet physical interface 403 for connection to an Ethernet synchronous network. In between the SDH/SONET payload mapper 400 and Ethernet physical interface 403 are components that perform rate adaptation 401 and an Ethernet frame switch (multi-port MAC bridge) 402. The rate adaptation may be performed by "a field programmable gate array (FPGA) or an application specific integrated circuit (ASIC)" column 7, lines 36-38) providing "Ethernet ports operating at 10 MBits/s and 100 MBits/s" (column 7, line 40) on one side and "synchronous ports operating at 2 MBits/s, 50 MBits/s and 100 MBits/s" (column 7, lines 42-43) on the other side. The Ethernet frame switch is described as "a conventional frame switch, such as available from Plaintree, MMC or TI" (column 7, lines 30-31). Attached hereto as Exhibits A-C are definitions from the McGraw-Hill Computer Desktop Encyclopedia, 9th Edition, 2001 for "frame switch", "frame switching" and "LAN switch", and a block diagram for a TNETX4020 frame switch from Texas Instruments (TI). It should be apparent from Exhibits A-C that a frame switch includes at least one MAC processor and performs operations well above the physical layer.

U.S. Patent 5,706,285 to Saijonmaa et al.

The Saijonmaa et al. patent is directed to a network interface between asynchronous transfer mode (ATM) cell-based signals, time division multiplexed (TDM) transfer frames and E1 signals complying with the CCITT G704 with the lowest transmission rate of 2 Mbit/s. As illustrated in Fig. 2 and described at column 4, line 26 to column 6, line 27, when ATM cells are received by buffer 22, policing unit 21 performs data rate adaptation and a cell generator 23 generates empty cells which are combined by combiner 25 to form a constant isochronous cell stream that is applied to multiplexer unit 3 formed of a mapping block 31 and a multiplexer 32. The mapping block 31 forms cell blocks CB (see Figs. 3 and 4) which are routed by multiplexer 32 to one of N synchronous lines operating at 2Mbit/s. In the embodiments illustrated in Figs. 5 and 6 and described at column 6, lines 28-65, these 2 Mbit/s signals are supplied to "SDH multiplexer 51 which multiplexes the N transmission signals 6 produced by the multiplexer 3 into the STM-1 frames" (column 6, lines 37-39).

U.S. Patent 6,151,336 to Cheng et al.

The Cheng et al. patent is directed to a time division multiplexing expansion subsystem which includes encoders 212, 214, 216 (Fig. 2) and data scramblers 222, 224, 226 to encode data prior to transmission and corresponding unscramblers 622, 624, 626 (Fig. 3) and decoders 632, 634, 636 for decoding after transmission.

Rejection under 35 U.S.C. § 112 Second Paragraph

In item 2 on page 2 of the Office Action, claim 26 was rejected under the second paragraph of 35 U.S.C. § 112 due to the use of the definite article prior to "monitoring associated information". Claim 26 has been amended and therefore withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. § 102

In item 4 on pages 3-5 of the Office Action, claims 14-18, 20, 21 and 26 were rejected under 35 U.S.C. § 102(e) as anticipated by Russell et al. As discussed above, Russell et al. disclosed rate adaptation 401 that received output from an Ethernet frame switch 402 which is also referred to as a multi-port MAC bridge. Clearly, the rate adaptation is performed after frame detection has been performed. Claims 14, 18 and 20 have been amended to recite that the data reduction is performed "without frame detection" (claim 14, line 4 and claim 18, line 3) or "without detecting frames" (claim 20, line 3). Therefore, it is submitted that claims 14, 18 and 20, as well as claims 15, 16 and 21 which depend therefrom, patentably distinguish over Russell et al.

Claims 17 and 26 have been amended to recite that the signals recovered are "encoded 8B/9B signals" in accordance with the embodiment described on page 4 of the application. No suggestion has been found in Russell et al. of the ability to recover encoded 8B/8B signals. Therefore, it is submitted that claims 17 and 26 patentably distinguish over Russell et al.

Rejection under 35 U.S.C. § 103

In item 6 on pages 6-10 of the Office Action, claims 14-18, 20, 21 and 26 were rejected under 35 U.S.C. § 103(a) as unpatentable over Saijonmaa et al. in view of Russell et al. In making this rejection, Russell et al. was relied upon for it's disclosure of "a system for mapping Ethernet data frames into SDH virtual containers" (Office Action, page 6, first two lines of the last paragraph). However, as discussed above, Russell et al. does not disclose operating on Ethernet signals "without detecting frames" (claim 20, line 3). Therefore, it is submitted that claims 14-16, 18, 20 and 21 patentably distinguish over Saijonmaa et al. in view of Russell et al.

Similarly, nothing was cited in Saijonmaa et al. suggesting recovery of "encoded 8B/9B signals". Therefore, it is submitted that claims 17 and 26 patentably distinguish over Saijonmaa et al. in view of Russell et al. for the reasons discussed above with respect to Russell et al. taken alone.

In item 7 on pages 10-11, claim 19 was rejected under 35 U.S.C. § 103(a) as unpatentable over Russell et al. in view of Cheng et al. Nothing was cited or has been found in Cheng et al. overcoming the deficiencies of Russell et al. noted above. Since claim 19 depends from claim 18, it is submitted that claim 19 patentably distinguishes over Russell et al. in view of Cheng et al. for the reasons discussed above.

Objection to claims 22-25

In item 8 on page 11 of the Office Action, the Examiner objected to claims 22-25 as dependent from a rejected base claim. Claim 22 has been amended to form an independent claim incorporating the limitations of claim 20 prior to amendment and claims 23-25 depend from claims 22. Therefore, it is submitted that claims 22-25 are in a condition suitable for allowance.

Summary

It is submitted that the references cited by the Examiner, taken individually or in combination, do not teach or suggest the features of the present claimed invention. Thus, it is submitted that claims 14-26 are in a condition suitable for allowance. Reconsideration of the claims and an early Notice of Allowance are earnestly solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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on 12/11/ ,2003
STAAS & HALSEY
By: Richard A. Gollhofer
Date: 12/11/03

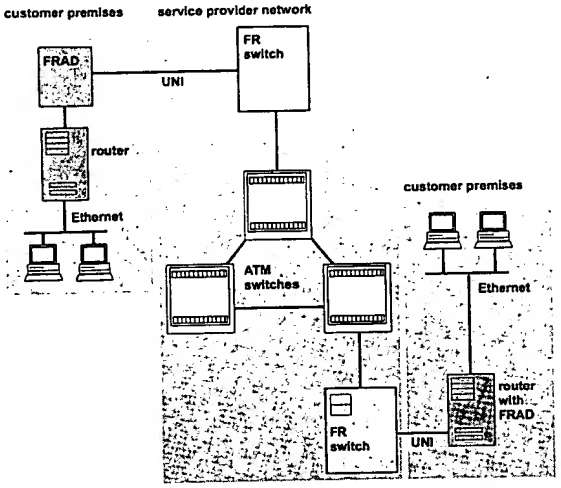
factors in history, current and future trends and all related networking technologies. Published by John Wiley & Sons, Inc., ISBN 0-471-31274-6.

frames A Web browser feature that enables a Web page to be displayed in a separate scrollable window on screen. Older browsers do not support the frames feature, and many Web sites have a frames and non-frames version of the site to accomodate them.

frame switch A network device that switches variable-length packets from sender to receiver. Ethernet, Token Ring and FDDI switches are examples. Contrast with *cell switching*. See *LAN switch* and *frame switching*.

frame switching Using frame switches to speed up network traffic. For example, when a 10BaseT Ethernet hub is replaced with an Ethernet frame switch, each sending and receiving pair of stations obtains the full bandwidth of the network. See *frame switch*.

framework (1) See *application framework*.
(2) (FrameWork) One of the first integrated software packages for PCs that included a programming language. It was developed by Ashton-Tate, later acquired by Borland.



A Frame Relay Network
This illustration depicts the customer and service provider sides of a frame relay network. An ATM backbone is shown, because it is a common method of interconnecting frame relay switches. The FRAD may be a separate device (left side of illustration) or software built into the router (right).

framing bit Same as *start bit* and *stop bit*.

FRED (Friendly Rollabout Engineered for Doctors) A mobile medical conferencing unit. See *videoconferencing*.

Freedman's law "Every 18 months, more novices are programming." By Alan Freedman, author of *The Computer Glossary* and *Computer Desktop Encyclopedia*. The job of programming is very misunderstood. It is actually easier to write a program than most people would think. However, the lack of experience causes programmers to create a maze that cannot easily be traversed later. For more details, see *programmer*. See also *user interface* and *laws*.

free e-mail See *Internet e-mail service*.

free-form data Data that does not reside in fixed locations. Unstructured text in a word processing document is a typical example. Contrast with *structured data*. See *free-form database*.

free-form database A database system that allows entry of unstructured text without regard to length or order. Although it accepts text input like a word processor, it differs by providing better methods for searching, retrieving and organizing the data.

free-form language A language in which statements can reside anywhere on a line or even cross over lines. It does not imply less syntax structure, just more freedom in placing statements. For example, any number of blank spaces are allowed between symbols. Most high-level programming languages are free-form.

free-form text Unstructured text (words, sentences, etc.) such as the input to a word processor or text editor. See *free-form database*.

FreeHand See *Macromedia FreeHand*.

free Internet service An ISP that provides access to the Internet without charge to the user. The service is supported by advertising which appears on a special version of the user's browser and cannot be eliminated. NetZero (www.netzero.com) is an example of a free Internet service provider.

EXHIBIT A

LAN segment A section of a local area network that is used by a particular workgroup or department and separated from the rest of the LAN by a bridge, router or switch. Networks are divided into multiple segments for security and to improve traffic flow by filtering out packets that are not destined for the segment. See *subnet mask*.

LAN Server (1) A network operating system from IBM that runs as a server application under OS/2 and supports both DOS, Windows and OS/2 clients. Originally based on LAN Manager when OS/2 was jointly developed by IBM and Microsoft, starting with LAN Server 3.0, it runs only under IBM's version of OS/2.

LAN Server provides disk mirroring, CID capability and Network Transport Services/2 (NTS/2) for concurrent access to NetWare servers. Options are LAN Server for the Macintosh for Mac client access and System Performance/2 (SP/2), a series of network management utilities.

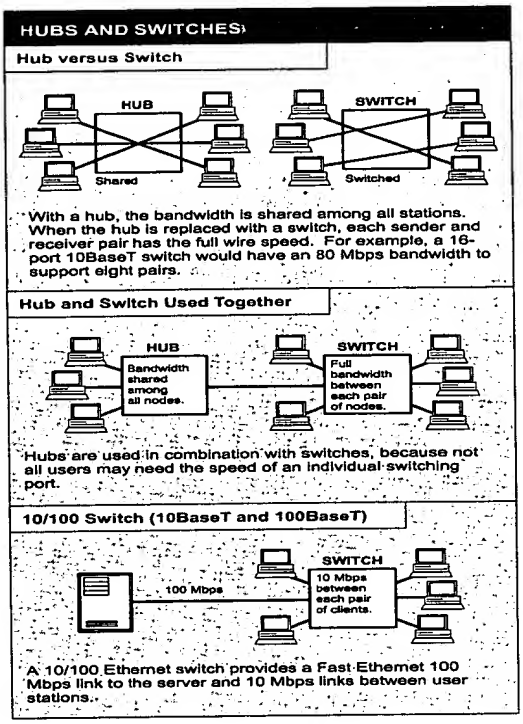
(2) (LAN server) Generically, a file server in a network.

LAN station (1) A workstation in a local area network.

(2) See *LAN Network Manager*.

LAN switch A network device that cross connects stations or LAN segments. Also known as a "frame switch," LAN switches are available for Ethernet, Fast Ethernet, Token Ring and FDDI. ATM switches are generally considered in a category by themselves.

Network switches are increasingly replacing shared media hubs in order to increase bandwidth. For example, a 16-port 100BaseT hub shares the total 100 Mbps bandwidth with all 16 attached nodes. By replacing the hub with a switch, each sender/receiver pair has the full 100 Mbps capacity. Each port on the switch can give full bandwidth to a single server or client station or it can be connected to a hub with several stations. See *switched Ethernet*.



LANtastic A peer-to-peer LAN operating system for DOS, Windows and OS/2 from Artisoft, Inc., Tucson, AZ (www.artisoft.com). It supports Ethernet, ARCNET and Token Ring adapaters, as well as its own twisted pair adapter at two Mbits/sec. Artisoft also makes Ethernet adapters. Included are e-mail and chat functions. Voice mail and conversation are optional. Simply LANtastic is an entry-level version designed for easy installation and use.

Multiple protocols are supported starting with LANtastic 6.0, allowing a LANtastic client station to access a NetWare, LAN Manager, LAN Server or Windows NT server. LANtastic was very popular before Windows came along with its own networking built in. See *CorStream*.

LAN Workplace A family of software products from Novell that allows DOS, Windows, Macintosh and OS/2 clients in a NetWare environment to access resources on a TCP/IP network. LAN Workplace for DOS can also encapsulate NetWare protocols and run NetWare-dependent applications entirely within a TCP/IP network.

LAP (1) (Link Access Procedure) An ITU family of error correction protocols originally derived from the HDLC standard.

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LAP-B (Balanced)      Used in X-25 networks.
LAP-D (D channel)     Used in ISDN data channel.
LAP-M (Modem)         Defined in ITU V.42, which
                        uses some LAPD methods and
                        adds additional ones.
LAP-X (Half-dupleX)   Used in ship to shore
                        transmission.
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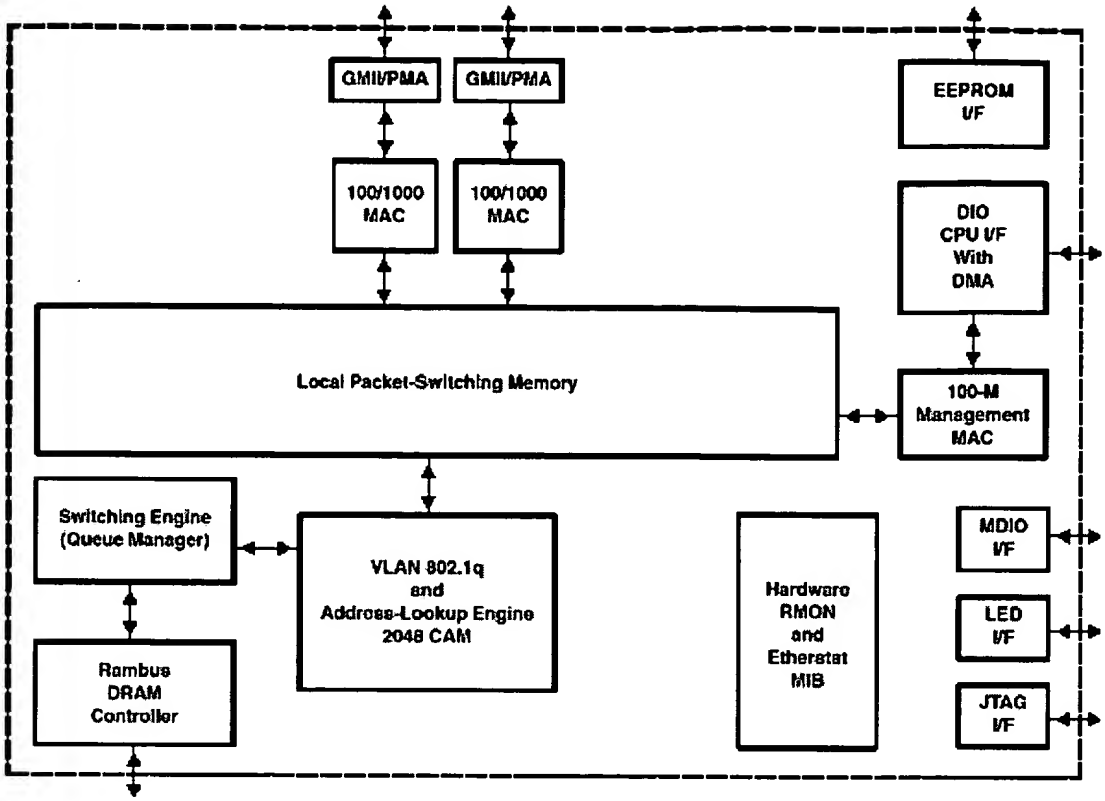
GMII/PMA
GMII/PMA
EEPROM I/F
100/1000 MAC
100/1000 MAC
DIO CPU I/F With DMA
Local Packet-Switching Memory
100-M Management MAC
Switching Engine (Queue Manager)
VLAN 802.1q and Address-Lookup Engine 2048 CAM
Hardware RMON and Etherstat MIB
MDIO I/F
LED I/F
JTAG I/F
Rambus DRAM Controller

EXHIBIT C